

TECHNICAL PAPER

04

Hydrology and flooding impact assessment

Appendix B Design case flood impact maps

Appendix B2 Velocity change maps

Part 2 of 2

NARRABRI TO NORTH STAR—PHASE 2 ENVIRONMENTAL IMPACT STATEMENT



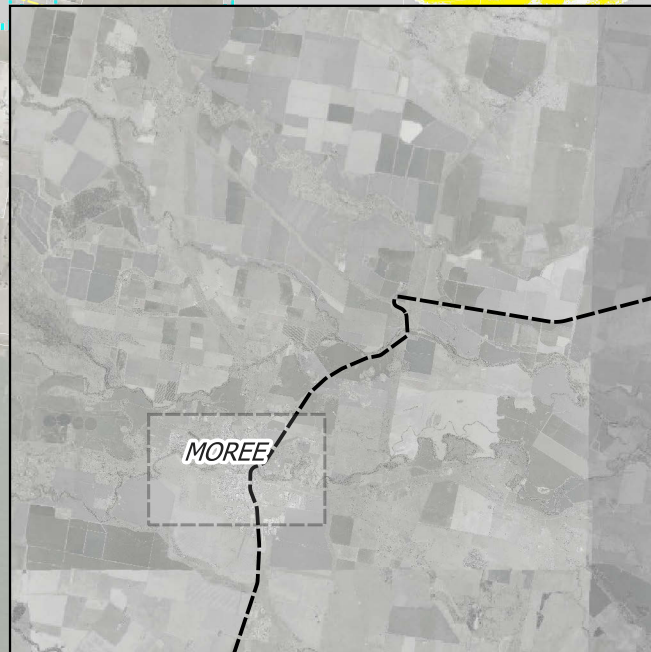


Legend

- Existing Rail Alignment
- Proposed Rail Alignment
- Major Roads
- Future Newell Hwy Upgrade
- Upgraded / New Culverts
- Upgraded Bridges
- Upgraded Level Crossings
- Cadastral Boundaries
- █ Newly Flooded
- █ No Longer Flooded
- █ $V_{des} \leq 0.5m/s$ and/or $(V_{des} - V_{ex}) \leq 0.025m/s$

Percentage Increase In Velocity:

- █ $\leq 0\%$
- █ $> 0\%$ to $\leq 10\%$
- █ $> 10\%$ to $\leq 20\%$
- █ $> 20\%$



Prepared for: ARTC
 Coordinate system: GDA 1994 MGA Zone 55
 Aerial Source: NSW Six Maps
 Scale ratio correct when printed at A3

0 500 1000 m

Scale: 1:20000

Stage: EIS
 Version: D
 Author: JS
 Approved by: RL
 Date: 16/06/2022

Inland Rail - Narrabri to North Star Phase 2
Peak Flood Change In Velocity ($V < 0.5m/s$) - Proposed Design Scenario
 Event: 2% AEP
 Sheet 1
 Map ID: DES_CHV_ALT_0pt5Mask_002_1

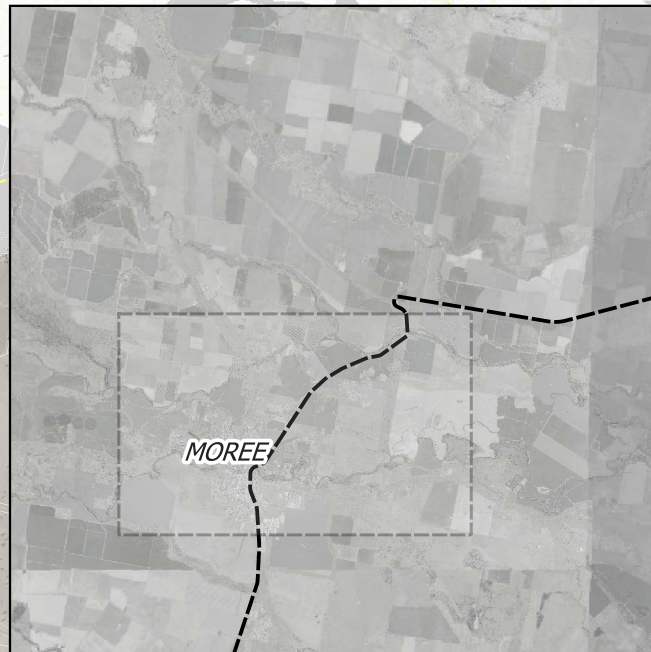


Legend

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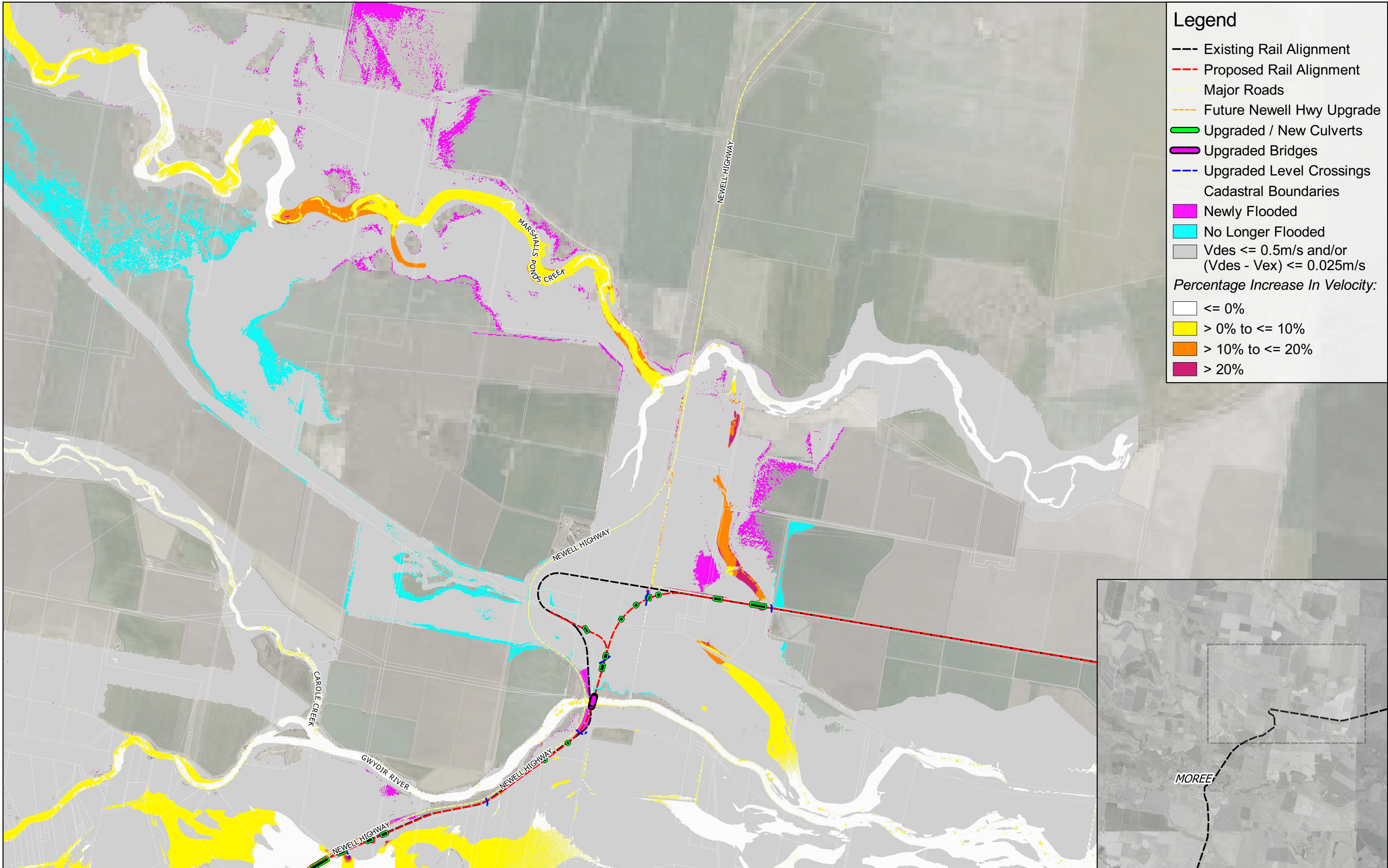
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 Aerial Source: NSW Six Maps
 Scale ratio correct when printed at A3

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Scale: 1:40000

Stage: EIS
 Version: D
 Author: JS
 Approved by: RL
 Date: 16/06/2022

Inland Rail - Narrabri to North Star Phase 2
Peak Flood Change In Velocity ($V < 0.5m/s$) - Proposed Design Scenario
 Event: 2% AEP
 Sheet 2
 Map ID: DES_CHV_ALT_0pt5Mask_002_2

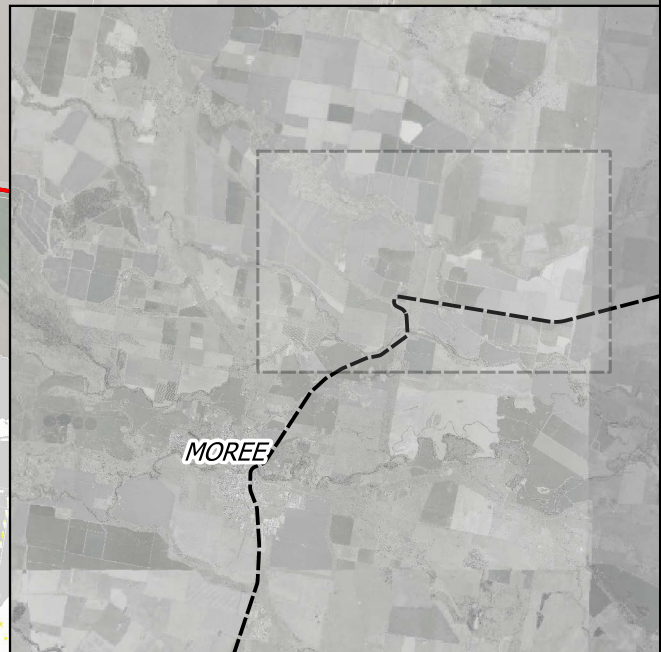


Legend

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- Upgraded Bridges
- Upgraded Level Crossings
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Percentage Increase In Velocity:

- <= 0%
- > 0% to <= 10%
- > 10% to <= 20%
- > 20%



Prepared for: ARTC
 Coordinate system: GDA 1994 MGA Zone 55
 Aerial Source: NSW Six Maps
 Scale ratio correct when printed at A3

0 500 1000 1500 2000 m

Scale: 1:40000

Stage: EIS
 Version: D
 Author: JS
 Approved by: RL
 Date: 16/06/2022

Inland Rail - Narrabri to North Star Phase 2
Peak Flood Change In Velocity (V<0.5m/s) - Proposed Design Scenario
 Event: 2% AEP
 Sheet 3
 Map ID: DES_CHV_ALT_0pt5Mask_002_3

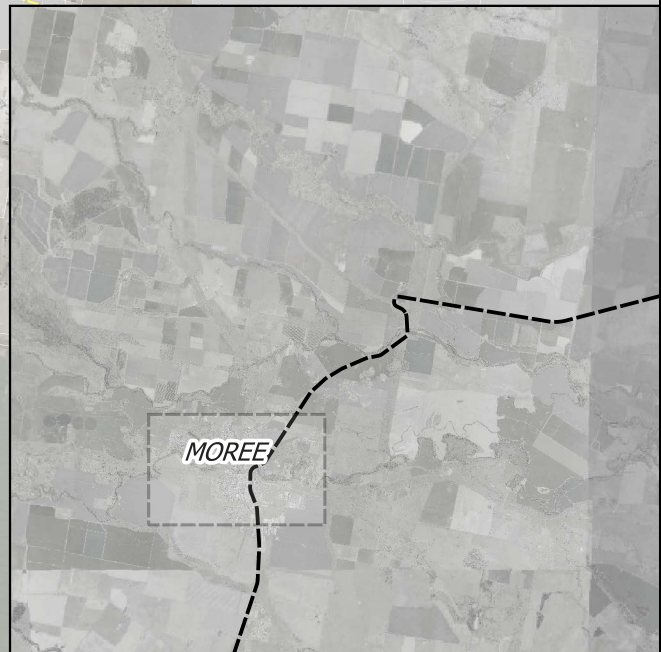


Legend

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Percentage Increase In Velocity:

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- $> 10\%$ to $\le 20\%$
- $> 20\%$



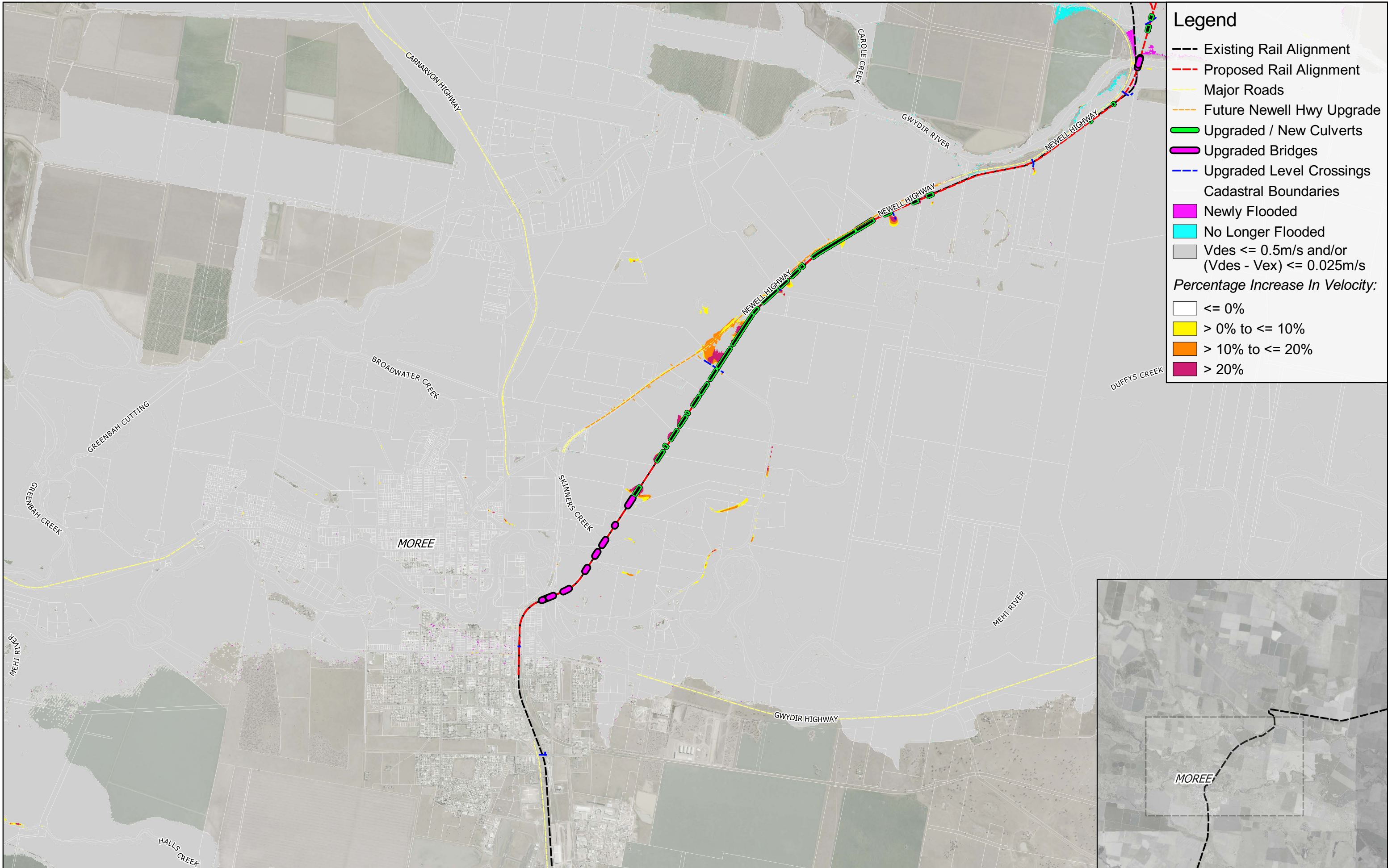
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Scale: 1:20000

Stage: EIS
 Version: D
 Author: JS
 Approved by: RL
 Date: 16/06/2022

Inland Rail - Narrabri to North Star Phase 2
Peak Flood Change In Velocity ($V < 0.5m/s$) - Proposed Design Scenario
 Event: 1% AEP
 Sheet 1
 Map ID: DES_CHV_ALT_0pt5Mask_001_1

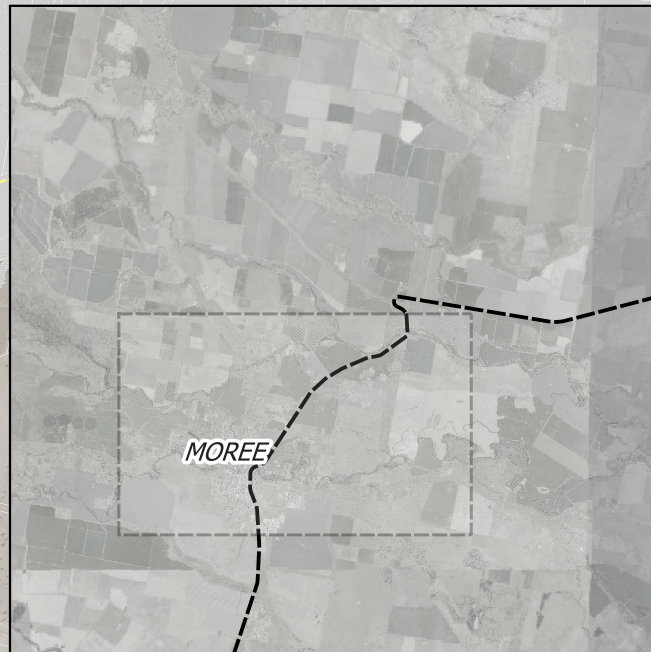


Legend

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Percentage Increase In Velocity:

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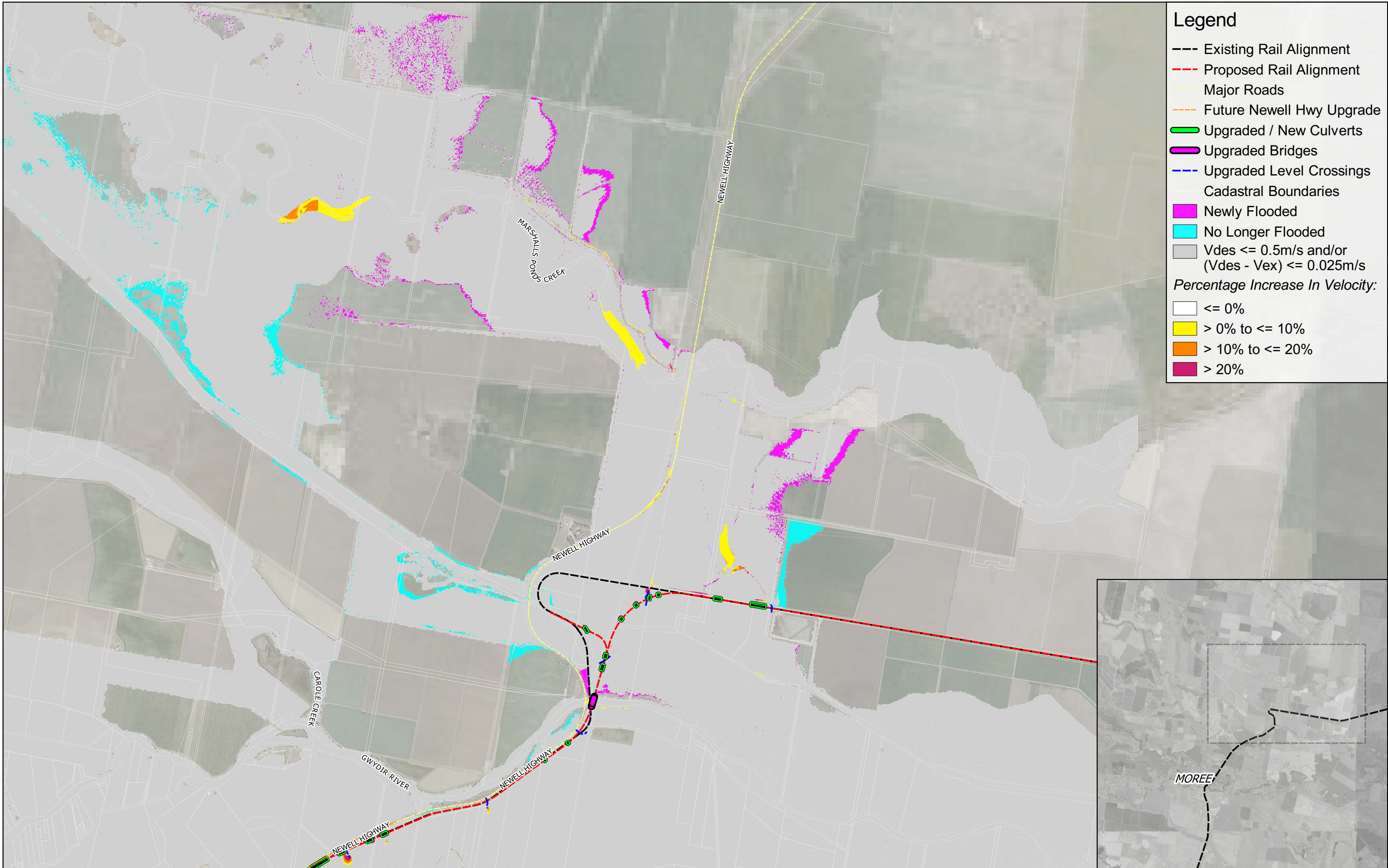
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 Aerial Source: NSW Six Maps
 Scale ratio correct when printed at A3

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Scale: 1:40000

Stage: EIS
 Version: D
 Author: JS
 Approved by: RL
 Date: 16/06/2022

Inland Rail - Narrabri to North Star Phase 2
Peak Flood Change In Velocity ($V < 0.5m/s$) - Proposed Design Scenario
 Event: 1% AEP
 Sheet 2
 Map ID: DES_CHV_ALT_0pt5Mask_001_2

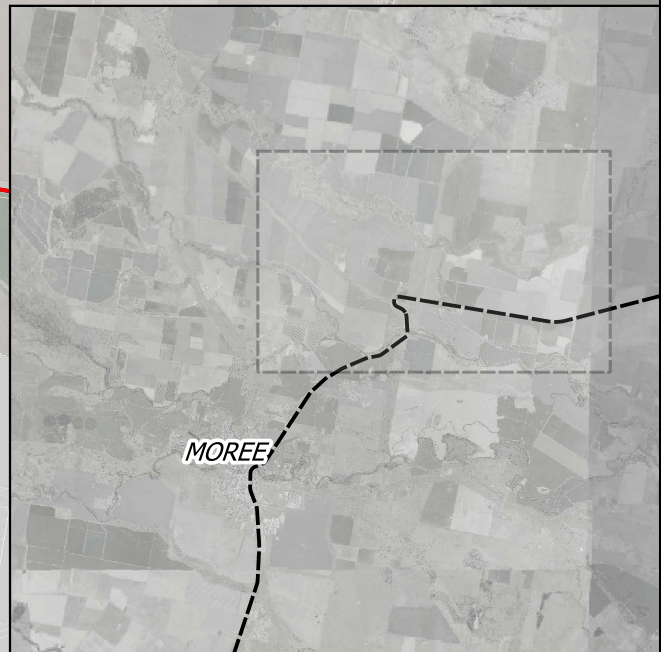


Legend

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- $> 0\%$ to $\leq 10\%$
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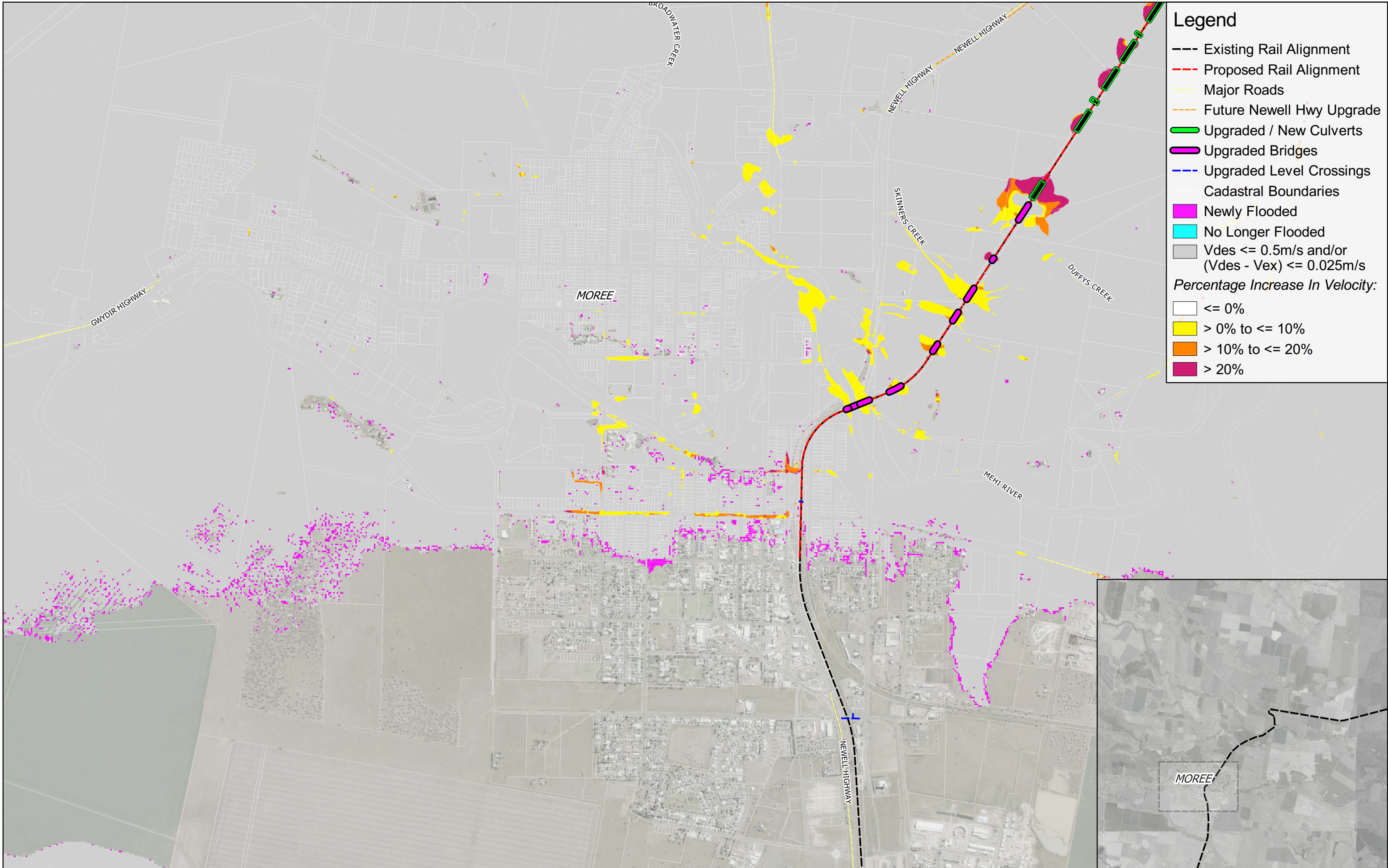
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 Coordinate system: GDA 1994 MGA Zone 55
 Aerial Source: NSW Six Maps
 Scale ratio correct when printed at A3

0 500 1000 1500 2000 m

Scale: 1:40000

Stage: EIS
 Version: D
 Author: JS
 Approved by: RL
 Date: 16/06/2022

Inland Rail - Narrabri to North Star Phase 2
Peak Flood Change In Velocity ($V < 0.5m/s$) - Proposed Design Scenario
 Event: 1% AEP
 Sheet 3
 Map ID: DES_CHV_ALT_0pt5Mask_001_3

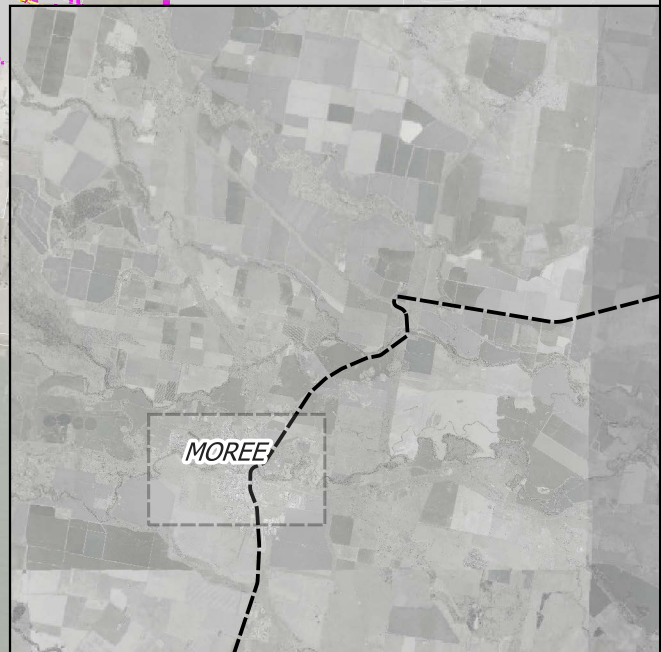


Legend

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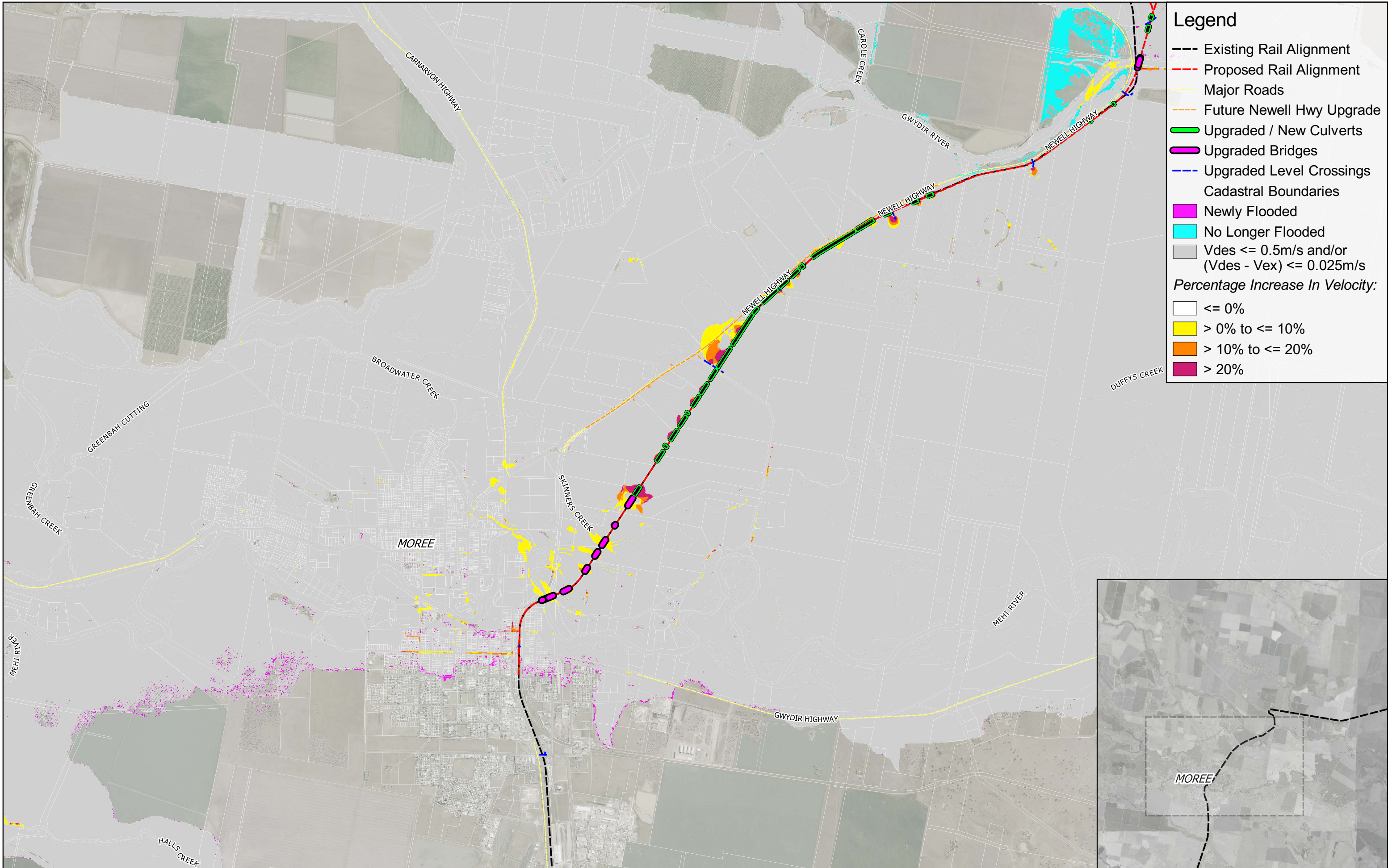
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 Coordinate system: GDA 1994 MGA Zone 55
 Aerial Source: NSW Six Maps
 Scale ratio correct when printed at A3

0 500 1000 m

Scale: 1:20000

Stage: EIS
 Version: D
 Author: JS
 Approved by: RL
 Date: 16/06/2022

Inland Rail - Narrabri to North Star Phase 2
Peak Flood Change In Velocity (V<0.5m/s) - Proposed Design Scenario
 Event: 1% AEP Climate Change
 Sheet 1
 Map ID: DES_CHV_ALT_Opt5Mask_001CC_1



- ### Legend
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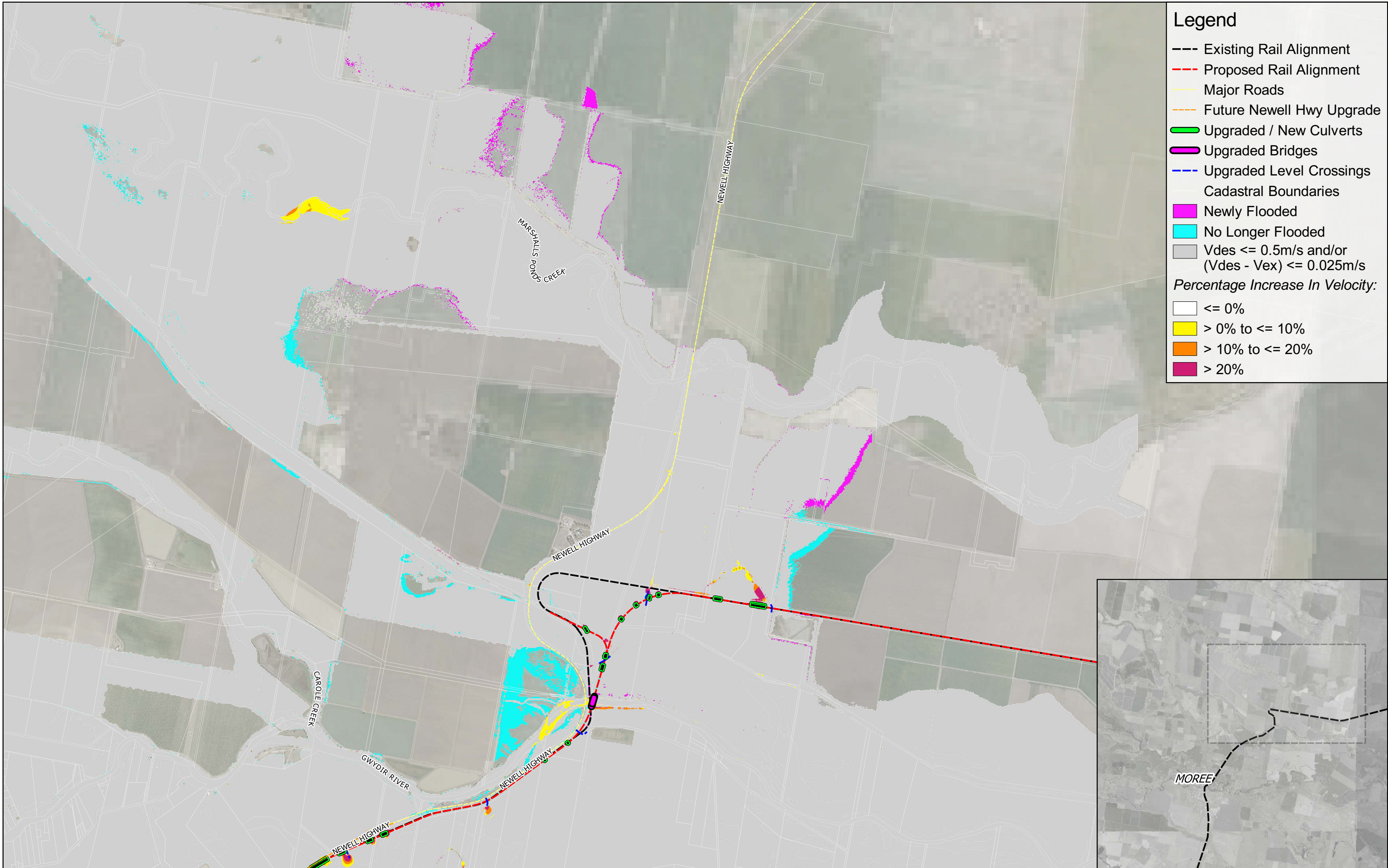
Prepared for: ARTC
 Coordinate system: GDA 1994 MGA Zone 55
 Aerial Source: NSW Six Maps
 Scale ratio correct when printed at A3

0 500 1000 1500 2000 m

Scale: 1:40000

Stage: EIS
 Version: D
 Author: JS
 Approved by: RL
 Date: 16/06/2022

Inland Rail - Narrabri to North Star Phase 2
Peak Flood Change In Velocity ($V < 0.5m/s$) - Proposed Design Scenario
 Event: 1% AEP Climate Change
 Sheet 2
 Map ID: DES_CHV_ALT_Opt5Mask_001CC_2

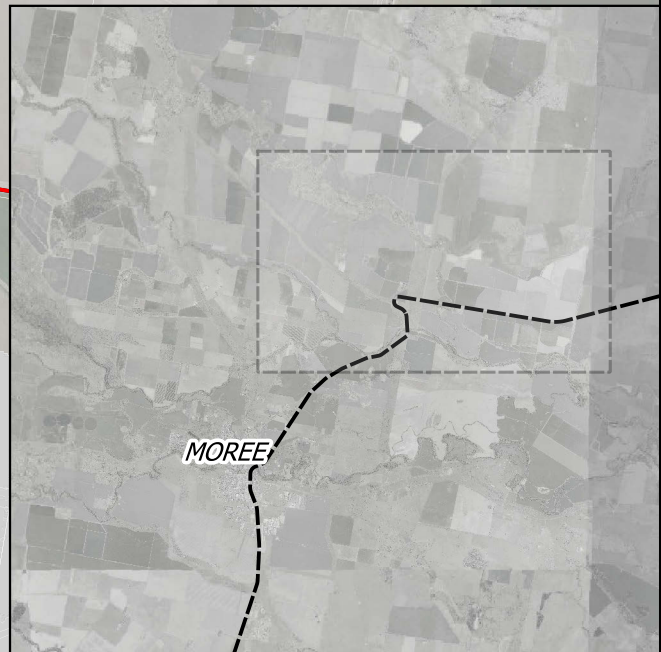


Legend

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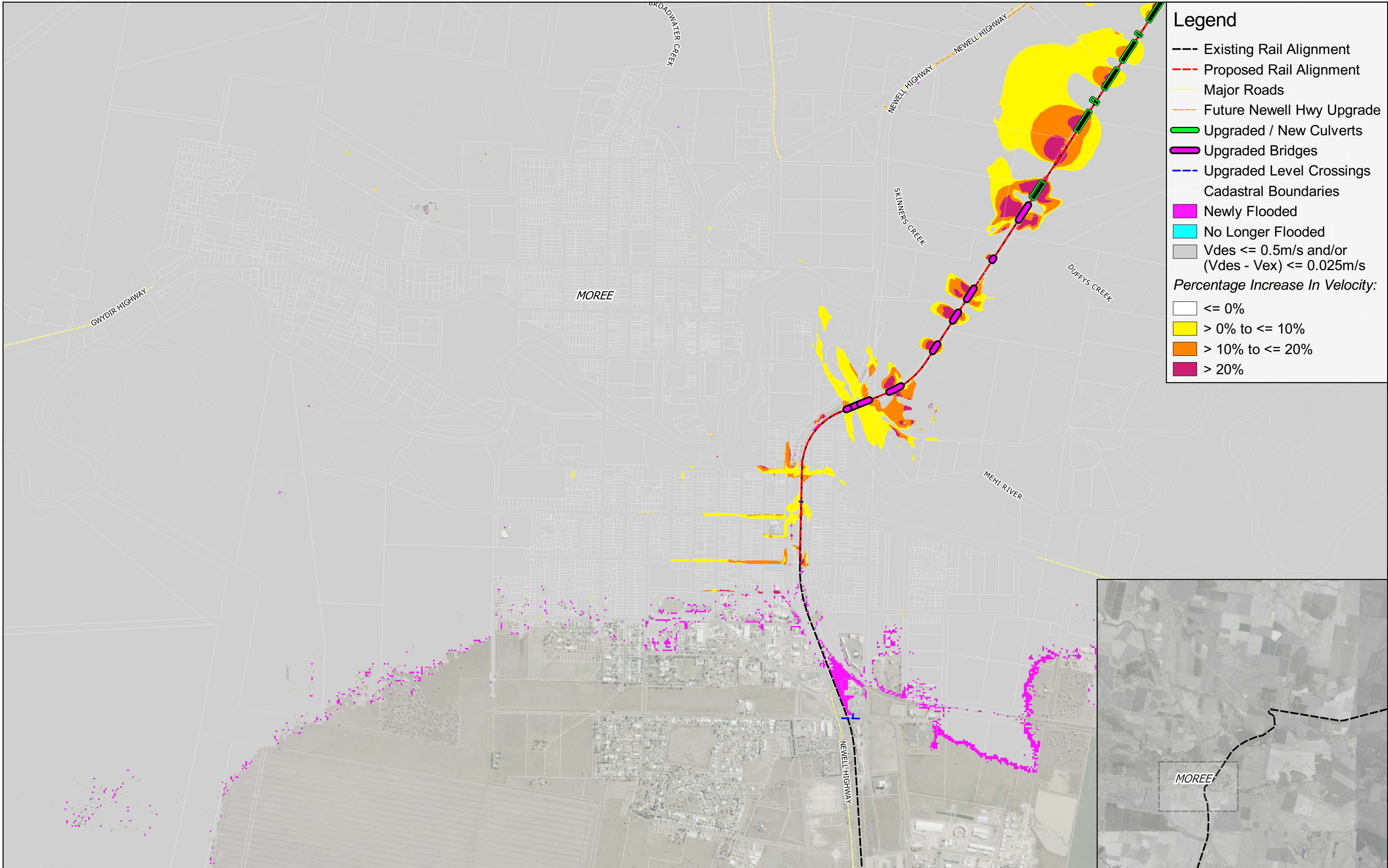
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 Coordinate system: GDA 1994 MGA Zone 55
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 Scale ratio correct when printed at A3

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Inland Rail - Narrabri to North Star Phase 2
Peak Flood Change In Velocity (V<0.5m/s) - Proposed Design Scenario
 Event: 1% AEP Climate Change
 Sheet 3
 Map ID: DES_CHV_ALT_Opt5Mask_001CC_3

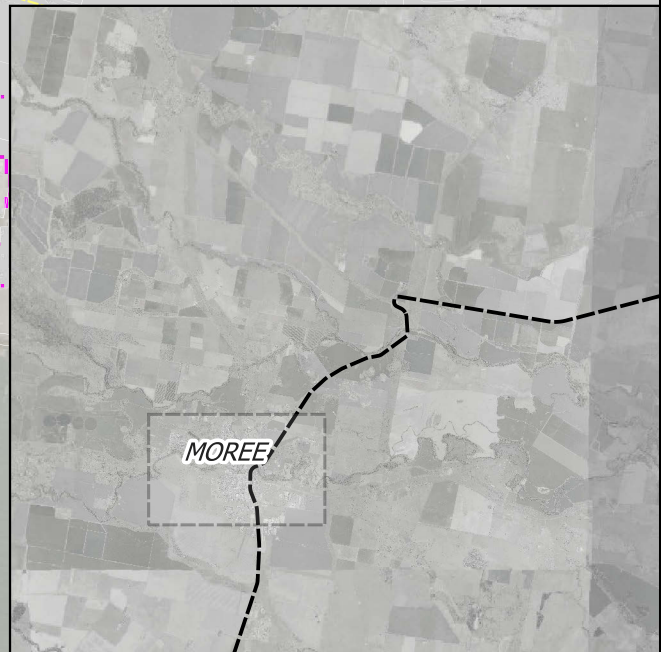


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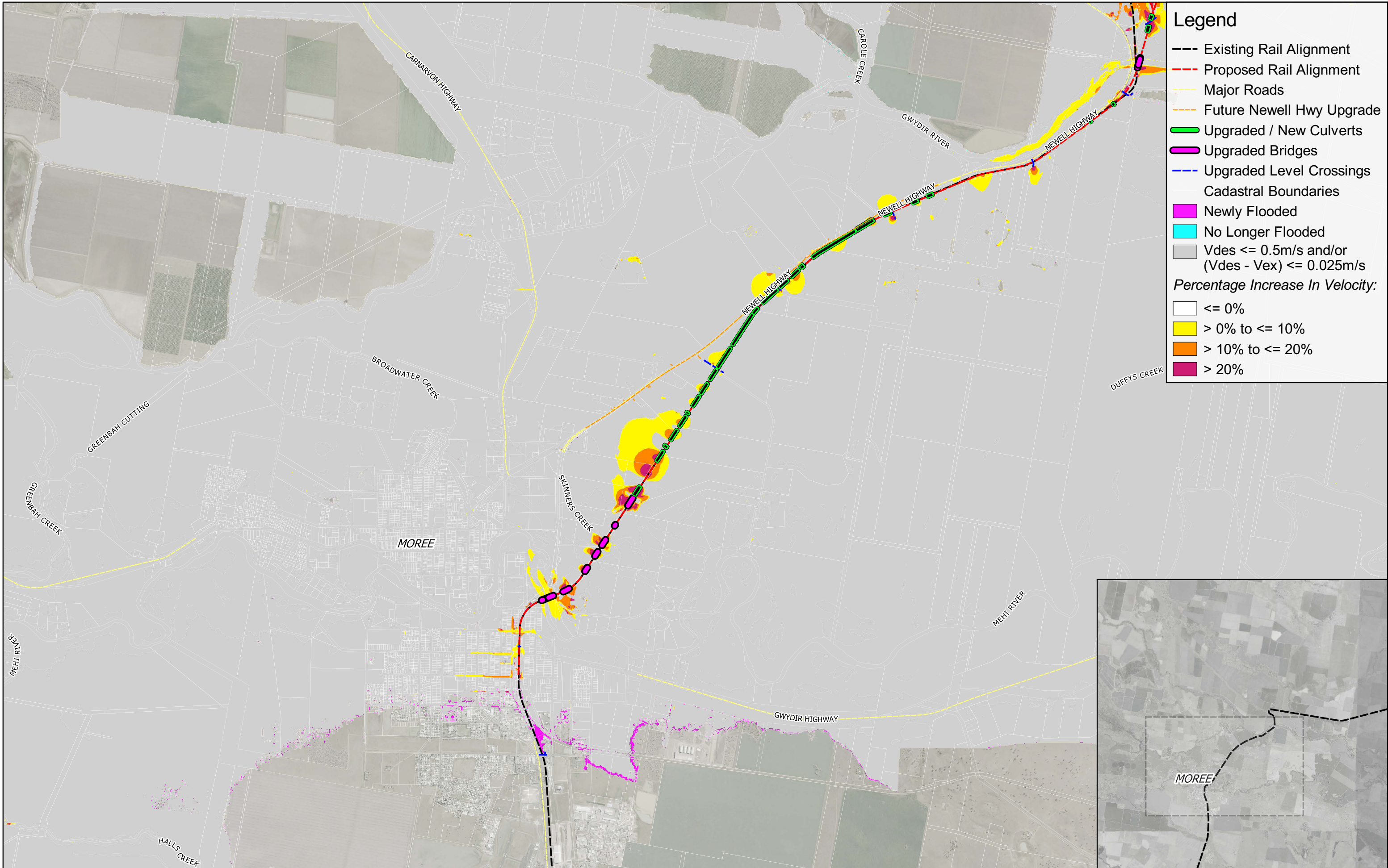
Prepared for: ARTC
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 Scale ratio correct when printed at A3

0 500 1000 m

Scale: 1:20000

Stage: EIS
 Version: D
 Author: JS
 Approved by: RL
 Date: 16/06/2022

Inland Rail - Narrabri to North Star Phase 2
Peak Flood Change In Velocity ($V < 0.5m/s$) - Proposed Design Scenario
 Event: PMF
 Sheet 1
 Map ID: DES_CHV_ALT_Opt5Mask_PMF_1

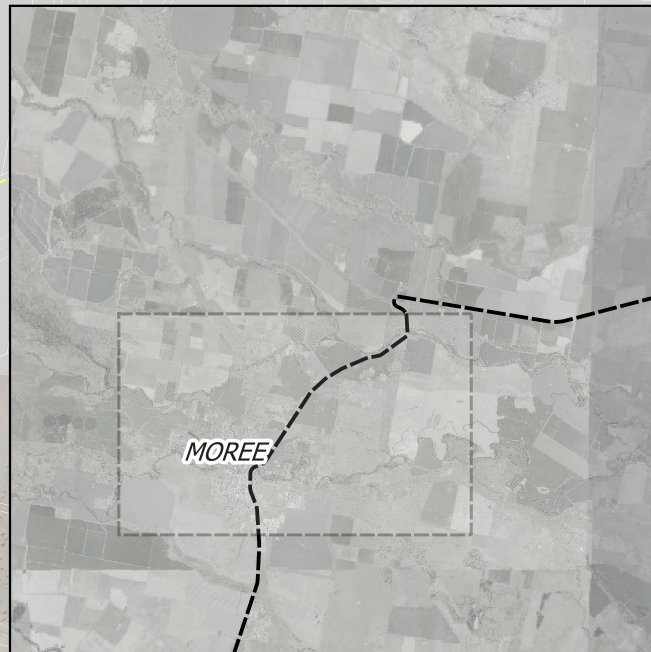


Legend

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Prepared for: ARTC
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 Aerial Source: NSW Six Maps
 Scale ratio correct when printed at A3

0 500 1000 1500 2000 m

Scale: 1:40000

Stage: EIS
 Version: D
 Author: JS
 Approved by: RL
 Date: 16/06/2022

Inland Rail - Narrabri to North Star Phase 2
Peak Flood Change In Velocity (V<0.5m/s) - Proposed Design Scenario
 Event: PMF
 Sheet 2
 Map ID: DES_CHV_ALT_Opt5Mask_PMF_2

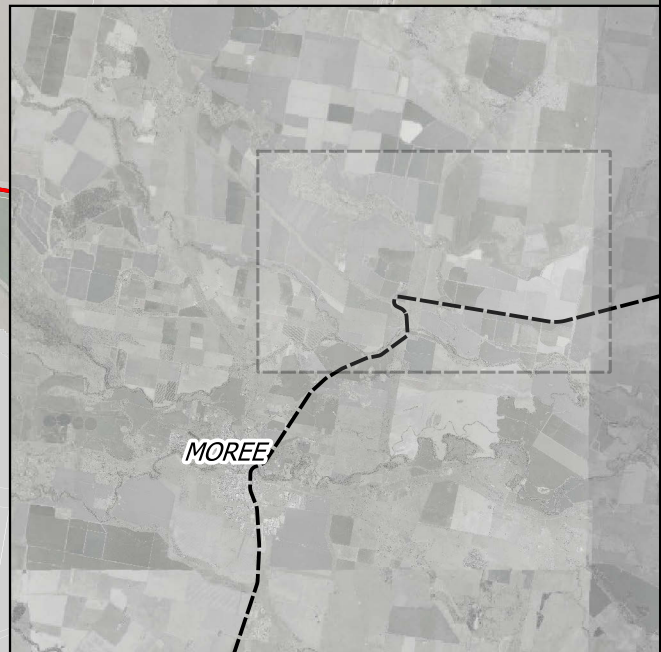


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 Event: PMF
 Sheet 3
 Map ID: DES_CHV_ALT_Opt5Mask_PMF_3